<ADC>

|  |  |
| --- | --- |
| **Document Name** | <ADC module> |
| **Version** | 1 |
| **Author** | <Mohamed mamdoh> |
| **Status** | Proposed |
| **Date** | 4/1/2016 |

# Introduction

*This module helps reading any analog signal which we need to detect the room temperature rises.*

## Document Scope

ADC description for further use.

## Goals and Objectives

This module helps user to read from analogue channels either one channel or group of channels in microcontrollers enables and disables the ADC component.

It reads positive voltages only.

## Context Diagram

*Add the* System *context* diagram *of the system here*

Figure 1 : System *context* diagram *of <ADC>*

|  |  |
| --- | --- |
| **Interface** | **Description** |
| *Temperature sensor* | *The readings of the sensor is converted into voltage that can be*  *Read through ADC.* |

Table 1: Interfaces description

*Add the Control Flow Diagram of the system here*

Figure 2 : Control Flowdiagram

|  |  |  |  |
| --- | --- | --- | --- |
| ***API*** | ***Description*** | ***Inputs*** | ***Return Value*** |
| **void** **ADC\_voidInit**(**void)** | Enabling features for using ADC component | N/A | N/A |
| **void** **ADC\_voidEnable**(**void**) | Enabling ADC on atmega32 | N/A | N/A |
| **void** **ADC\_voidDisable**(**void**) | Disabling ADC on atmega32 | N/A | N/A |
| u8 **ADC\_u8ReadCh\_SSht**(u8 Copy\_ChIdx , u16 \* Copy\_PtrToVal) | Reading ADC channel and returns its value | -Channel index  -pointer to the channel value | Returns an ok or error message in unsigned char |

# Design Constraints

## Constraints on Initialization

Supports only atmega32

## Constraints on Inputs

Channel indices can’t be more than 8

## Constraints on Outputs

No negative voltages

## Communication/Network Constraints

N/A

## Diagnostic Constraints

N/A